

Please replace the paragraph at page 69, lines 19-21 with the following:

B⁵
Additional characteristics of each of these fusions, as well as N+5FLAG-TGF- β 1 (SEQ ID NOs: 16 and 17) and N+5HA-TGF- β 1 (SEQ ID NO: 20 and 21) fusions, are provided in Table 2.

Please replace the paragraph at page 70, lines 1-3 with the following:

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Table 2

Fusion name and SEQ ID NOs.	5'UTR	CDS	3'UTR	AA 1-5 of TGF- β	Epitope tag	Mature fusion
N+5FLAG-TGF- β 1 (NOs: 16 & 17) ¹	1-347 ²	348-1559	1560-1612	1182-1196	1197-1220	182-1559
N+5HA-TGF- β 1 (NOs: 20 & 21)	1-347	347-1571	1572-1624	1182-1196	1197-1232	1182-1571
N+5FLAG TGF- β 2 (NOs: 24 & 25)	N/A	1-1284	N/A	907-921	922-945	907-1284
N+5HA TGF- β 2 (NOs: 26 & 27)	1-7	8-1303	N/A	914-928	929-964	914-1303
N+5FLAG TGF- β 3 (NOs: 28 & 29)	N/A	1-1272	N/A	895-909	910-945	895-1272
N+5HA TGF- β 3 (NOs: 30 & 31)	N/A	1-1284	N/A	895-909	910-945	895-1284
N+5FLAG TGF- β 1 (NOs: 32 & 33)	1-10	11-1222	1223-1349	845-859	860-883	845-1222
N+5FLAG-TGF- β 1 (NOs: 34 & 35)	1-14	15-1226	1227-1253	849-863	864-887	849-1226
N+5FLAG TGF- β 1 (NOs: 36 & 37)	1-10	11-1234	1235-1361	845-859	860-895	845-1234
N+5FLAG TGF- β 1 (NOs: 38 & 39)	1-10	11-1234	1335-1361	845-859	860-895	845-1234

¹Refers to the nucleic acid sequence and amino acid sequence for the listed fusion.

²Residue positions correspond to the position in the nucleic acid sequence.

In the Claims:

Please amend the claims to read as follows:

1. (Reiterated) A functional TGF- β family fusion protein, comprising:

a functionalizing peptide portion for detecting, quantifying or providing a specific additional function to the fusion protein; and

a mature TGF- β family protein, or a variant or fragment thereof having at least 85% sequence identity with the mature TGF- β family protein and which retains TGF- β family protein activity.

2. (Reiterated) A functional TGF- β family protein dimer formed by the association of two of the fusion proteins of claim 1.

3. (Reiterated) The dimer of claim 2, wherein the dimer is a homodimer.

4. (Reiterated) The dimer of claim 2, made by a process comprising:
expressing a nucleic acid molecule in a eukaryotic cell to produce a monomer fusion protein, wherein the nucleic acid molecule comprises:

a sequence encoding the functionalizing peptide portion;
a sequence encoding the mature TGF- β family protein; and
a sequence encoding a pro-region (latency associated peptide) of the TGF- β family protein, located to provide targeting and/or assembly and/or processing of the fusion protein encoded for by the nucleic acid.

5. (Reiterated) The dimer of claim 4, wherein the process further comprises:
associating two monomer fusion proteins to form the dimer.

6. (Reiterated) The dimer of claim 4, wherein the sequence encoding the pro-region is located upstream to both the sequence encoding the functionalizing peptide portion and the sequence encoding the mature TGF- β family protein.

7. (Reiterated) The dimer of claim 4, wherein the process further comprises:
cleaving the pro-region (latency associated peptide) from at least one fusion monomer.

8. (Reiterated) The dimer of claim 4, wherein the process further comprises:
cleaving the pro-region (latency associated peptide) from both fusion monomers.

9. (Reiterated) The fusion protein of claim 1, wherein the functionalizing peptide portion is at the N-terminus of the mature TGF- β family protein.

10. (Reiterated) The fusion protein of claim 9, wherein the mature TGF- β family protein is TGF- β 1.

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11. (Amended) The fusion protein of claim 10, where the protein comprises the amino acid sequence as in SEQ ID NO: 11, SEQ ID NO: 15, the mature portion of SEQ ID NO: 33, the mature portion of SEQ ID NO: 35, the mature portion of SEQ ID NO: 39, the mature portion of SEQ ID NO: 37, or conservative substitutions thereof.

12. (Reiterated) The fusion protein of claim 1, wherein the functionalizing peptide portion is inserted within the mature functional TGF- β family protein.

13. (Reiterated) The fusion protein of claim 12, wherein the functionalizing peptide portion is inserted at a position of relatively low sequence conservation within the TGF- β super family.

14. (Reiterated) The fusion protein of claim 12, wherein the functionalizing peptide portion is inserted between a pair of adjacent residues between about residues 1 and 22 of the mature TGF- β family protein.

15. (Reiterated) The fusion protein of claim 14, wherein the functionalizing peptide portion is inserted between residues 11 and 12 of the mature TGF- β family protein.

16. (Reiterated) The fusion protein of claim 14, wherein the mature TGF- β family protein is TGF- β 1.

17. (Reiterated) The fusion protein of claim 16, where the protein comprises the amino acid sequence as in SEQ ID NO: 15, or conservative substitutions thereof.

18. (Reiterated) The fusion protein of claim 1, further comprising a pro-region (latency associated peptide) of the TGF- β family protein located to provide targeting and/or assembly and/or processing of the fusion protein.
19. (Reiterated) The fusion protein of claim 18, wherein the pro-region is located at the N-terminal region of the fusion protein.
20. (Reiterated) The fusion protein of claim 1, wherein the mature TGF- β family protein is TGF- β 2, TGF- β 3, TGF- β 1, TGF- β 4 (chicken), TGF- β 5 (*Xenopus*), GDF-9 (mouse/human), BMP-16/nodal (mouse), Fugacin (*Xenopus*), BMP3, Sumitomo-BIP/GDF-10 (mouse), ADMP (*Xenopus*), BMP-9, Dorsalin-1 (Chicken), BMP-10, BMP-13/GDF-6 (mouse), Radar (Zebrafish), GDF-1/CDMP-1 (mouse/human), BMP-12/GDF-7 (mouse), BMP-5, BMP-6, BMP-7/OP-1, BMP-8/OP-2, PC8/OP-3 (mouse), 60A (*Drosophila*), BMP-2, BMP-4, Decapentaplegic (*Drosophila*), Vg-1 (*Xenopus*), Univin (sea urchin), Vgr-2/GDF-3, GDF-1, Screw (*Drosophila*), BMP-11, GDF-8, Activin β C, Activin β D (*Xenopus*), Activin β E, BMP-14/GDF-12, Activin β A, Activin β B, GDF-14, Mullerian inhibiting substance, or α -inhibin.
21. (Reiterated) The fusion protein of claim 1, wherein the mature TGF- β family protein is TGF- β 1, TGF- β 2, or TGF- β 3.
22. (Reiterated) The fusion protein of claim 1, wherein the mature TGF- β family protein is TGF- β 1.
23. (Reiterated) The fusion protein of claim 1, wherein the mature TGF- β family protein is TGF- β 2.
24. (Reiterated) The fusion protein of claim 1, wherein the mature TGF- β family protein is TGF- β 3.

25. (Reiterated) The fusion protein of claim 1, wherein the functionalizing peptide portion comprises a tag, a targeting moiety, or a biologically active protein domain.

26. (Reiterated) The fusion protein of claim 25, wherein the targeting moiety comprises a domain of a cell surface binding protein.

27. (Reiterated) The fusion protein of claim 25, wherein the biologically active protein domain comprises a toxin, an enzyme, or a fluorescent peptide.

28. (Reiterated) The fusion protein of claim 25, wherein the tag is an epitope tag, a purification tag, or an identification tag.

29. (Reiterated) The fusion protein of claim 25, wherein the tag comprises a FLAG tag, a c-myc tag, a 6x His tag, a HA tag, a Tat tag, a T7 tag, a GFP peptide, or a GST peptide.

30. (Reiterated) An isolated nucleic acid molecule encoding a fusion protein of claim 1, or a conservative substitution thereof.

31. (Amended) The isolated nucleic acid molecule of claim 30, comprising a sequence selected from the group consisting of:

- B8
- (a) nucleic acid residues 835 to 1197 of SEQ ID NO: 8;
 - (b) SEQ ID NO: 10;
 - (c) residues 835 to 1197 of SEQ ID NO: 12;
 - (d) SEQ ID NO: 14;
 - (e) residues 845-1222 of SEQ ID NO: 32;
 - (f) residues 849-1226 of SEQ ID NO: 34;
 - (g) residues 845-1234 of SEQ ID NO: 36;
 - (h) residues 845-1234 of SEQ ID NO: 38;

and

- (i) conservative variants of any one of (a) through (h).

32. (Reiterated) The isolated nucleic acid molecule of claim 30, further comprising a sequence encoding a TGF- β pro-region.

33. (Amended) The isolated nucleic acid molecule of claim 30, comprising a sequence selected from the group consisting of:

- B9
- (a) SEQ ID NO: 8;
 - (b) SEQ ID NO: 12;
 - (c) SEQ ID NO: 32;
 - (d) SEQ ID NO: 34;
 - (e) SEQ ID NO: 36; and
 - (f) SEQ ID NO: 38.

34. (Reiterated) A recombinant nucleic acid molecule comprising a promoter sequence operably linked to the isolated nucleic acid molecule according to claim 30.

35. (Reiterated) A transgenic cell comprising a recombinant nucleic acid molecule according to claim 34.

36. (Reiterated) The transgenic cell of claim 35, wherein the cell is a bacterial cell or an eukaryotic cell.

37. (Reiterated) The eukaryotic cell of claim 36, wherein the cell is a yeast cell or a mammalian cell.

49. (Amended) A purified functional TGF- β fusion protein, comprising an amino acid sequence selected from the group consisting of:

- B10
- (a) SEQ ID NO: 9;
 - (b) SEQ ID NO: 11;
 - (c) SEQ ID NO: 13;
 - (d) SEQ ID NO: 15;
 - (e) SEQ ID NO: 33;

- B^D
- (f) SEQ ID NO: 35;
 - (g) SEQ ID NO: 37;
 - (h) SEQ ID NO: 39;
 - (i) sequences having 85% sequence identity to any one of (a) through (h);

and

- (j) conservative substitutions thereof.

50. (Reiterated) An isolated nucleic acid molecule encoding the protein of claim 49.

51. (Reiterated) A recombinant nucleic acid molecule comprising a promoter sequence operably linked to the nucleic acid molecule of claim 50.

52. (Reiterated) A transgenic cell comprising the recombinant nucleic acid molecule according to claim 51.

53. (Reiterated) The fusion protein of claim 9, wherein the mature TGF- β family protein is TGF- β 2.

55. (Reiterated) The fusion protein of claim 9, wherein the mature TGF- β family protein is TGF- β 3.

Please withdraw claims 38-48, 54 and 56.

In the Sequence Listing:

Please replace the current Sequence Listing with the enclosed replacement Sequence Listing.